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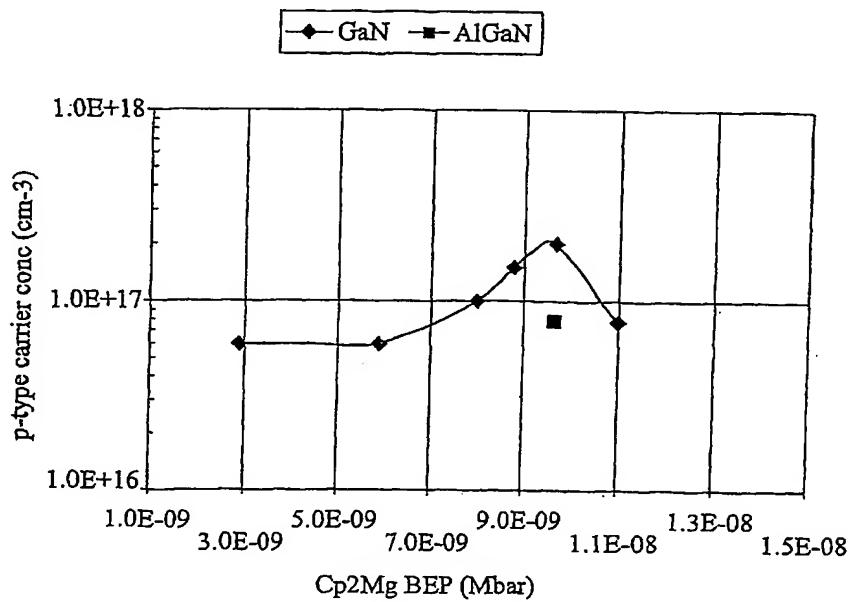
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(54) Title: MBE GROWTH OF P-TYPE NITRIDE SEMICONDUCTOR MATERIALS



(57) Abstract: A method of growing a p-type nitride semiconductor material by molecular beam epitaxy (MBE) uses bis(cyclopentadienyl)magnesium (Cp<sub>2</sub>Mg) as the source of magnesium dopant atoms. Ammonia gas is used as the nitrogen precursor for the MBE growth process. To grow p-type GaN, for example, by the method of the invention, gallium, ammonia and Cp<sub>2</sub>Mg are supplied to an MBE growth chamber; to grow p-type AlGaN, aluminium is additionally supplied to the growth chamber. The growth process of the invention produces a p-type carrier concentration, as measured by room temperature Hall effect measurements, of up to 2 10<sup>17</sup>cm<sup>-3</sup>, without the need for any post-growth step of activating the dopant atoms.

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